SEKOKINI SPRINGS FISH HATCHERY
POND AND STREAM CHANNEL ENHANCEMENT PROJECT
WEST GLACIER, MONTANA
FINAL DESIGN
MONTANA FISH, WILDLIFE AND PARKS PROJECT #73839

PROJECT SPONSOR

Montana Fish, Wildlife & Parks

MONTANA FISH, WILDLIFE & PARKS
600 NORTH PARK
PO BOX 200701
HELENA, MT 59620-0701

BONNEVILLE POWER ADMINISTRATION
905 NE 11TH AVENUE
PORTLAND, OR 97208

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO COMPLETE EXTERIOR INFRASTRUCTURE IMPROVEMENTS AT MONTANA FISH, WILDLIFE & PARKS (FWP) SEKOKINI SPRINGS NATURAL REARING FACILITY. THIS PROJECT WILL ENHANCE NATIVE FISH SPECIES RESEARCH VIA OUTDOOR REARING PONDS. HABITAT IMPROVEMENTS ARE ALSO NEEDED TO ENHANCE NATURAL STREAM CHANNEL CHARACTERISTICS USING NATIVE MATERIALS.

THE SEKOKINI SPRINGS FISH HATCHERY COMPLEX IS MANAGED BY MONTANA FWP THROUGH A SPECIAL USE PERMIT WITH THE UNITED STATES FOREST SERVICE. THIS PROJECT SERVES AS A COMPONENT OF THE SEKOKINI SPRINGS MASTER PLAN AND IS FUNDED THROUGH BONNEVILLE POWER ADMINISTRATION MITIGATION FUNDS.

GENERAL NOTES

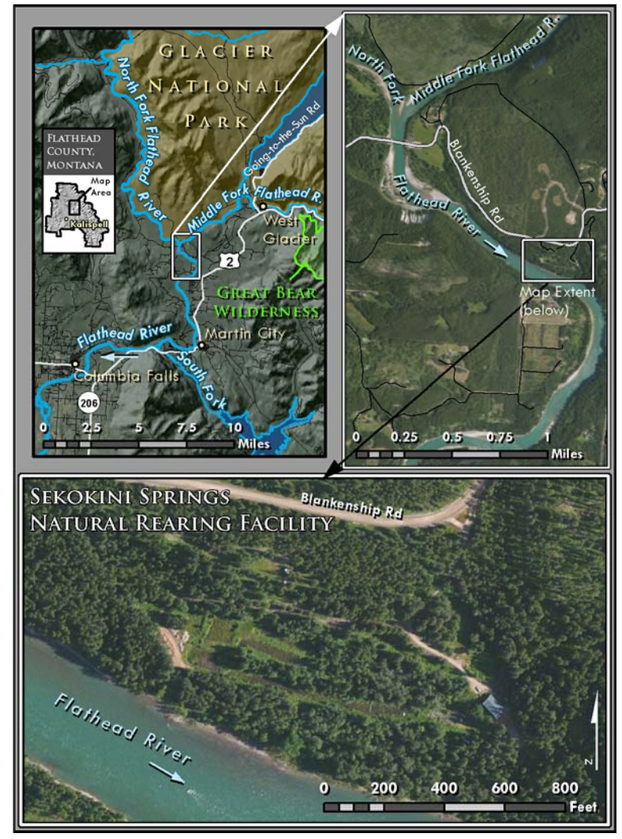
1. CONTOUR INTERVAL IS NOTED ON DRAWINGS.
2. SLOPES DESIGNATED AS 2:1, 1.5:1, ET CETERA, ARE THE RATIOS OF HORIZONTAL DISTANCE TO VERTICAL DISTANCE.
3. DIMENSIONS ARE GIVEN IN FEET AND TENTHS OF A FOOT.
4. TOPOGRAPHY AND CROSS SECTION GROUND LINES ARE BASED ON PHOTOGRAMETRY WORK PROVIDED BY FWP AND SURVEY DATA PERFORMED IN APRIL 2013 BY RIVER DESIGN GROUP.
5. ALL EXISTING CONDITIONS ARE TO BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION AND ANY ADJUSTMENTS TO THE DRAWINGS SHALL BE MADE AS DIRECTED BY THE ENGINEER.
6. THE DRAWINGS AND THE ASSOCIATED WORK DESCRIPTIONS REPRESENT THE CONSTRUCTION DOCUMENTS. ANY DEVIATIONS FROM THESE DRAWINGS AND ASSOCIATED WORK DESCRIPTIONS REQUIRE WRITTEN APPROVAL FROM THE ENGINEER.
7. PROTECT ALL TREES AND LAND AREAS NOT LOCATED WITHIN THE PROJECT CONSTRUCTION, STAGING OR EARTHWORK LIMITS. EXERCISE CARE IN AREAS NOT SO MARKED TO AVOID UNNECESSARY DAMAGE TO NATURAL VEGETATION.
8. RIVER DESIGN GROUP INC. HAS PROVIDED APPROXIMATE LOCATIONS OF SOME UTILITIES. UTILITIES IDENTIFIED ON THE PLANS ARE NOT ABSOLUTE HORIZONTAL AND VERTICAL LOCATIONS. THE CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE UTILITY LOCATE SERVICE PRIOR TO CONSTRUCTION AND WILL BE LIABLE FOR ANY DAMAGE RESULTING FROM DISRUPTION OF SERVICE CAUSED BY CONSTRUCTION ACTIVITIES.
9. THE PROJECT SPONSOR HAS OBTAINED ALL CONSTRUCTION PERMITS. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL PROVIDED PERMITS.
10. EXCAVATION, TRENCHING, SHORING, AND SHIELDING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR PERFORMING THE WORK, THESE DRAWINGS ARE NOT INTENDED TO PROVIDE MEANS OR METHODS OF CONSTRUCTION.
11. EXCAVATION SHALL MEET THE REQUIREMENTS OF OSHA 29 CFR PART 1926, SUBPART P, EXCAVATIONS. ACTUAL SLOPES SHALL NOT EXCEED THE SLOPES AS INDICATED ON DRAWINGS.
12. ENGINEER WILL PROVIDE SURVEY CONTROL AND GRADING SURFACES FOR EQUIPMENT WITH GPS MACHINE CONTROL CAPABILITY. CONTRACTOR SHALL PROVIDE SURVEY STAKING AND LAYOUT FOR CONSTRUCTION.
13. VERTICAL TOLERANCE FOR EARTHWORK CONSTRUCTION COMPLIANCE WILL BE 0.3 FEET. HORIZONTAL TOLERANCE FOR EARTHWORK CONSTRUCTION COMPLIANCE WILL BE 0.5 FEET. TOLERANCE FOR ALL STRUCTURE INSTALLATION COMPLIANCE WILL BE 0.1 FEET.
14. CONTRACTOR SHALL CONFIRM QUANTITIES.

STANDARD OF PRACTICE

RIVER DESIGN GROUP USES CURRENT AND ACCEPTED PRACTICES AVAILABLE FOR THE DESIGN OF NATURAL RESOURCE ENHANCEMENTS. CURRENT STANDARDS FOR THE DESIGN OF RESOURCE ENHANCEMENTS VARY DEPENDING ON PROJECT GOALS. FOR THIS PROJECT, TOPOGRAPHIC AND FLOW DATA WERE PROVIDED BY OTHERS FOR USE BY RIVER DESIGN GROUP. EXISTING GROUND TOPOGRAPHIC DATA WAS PROVIDED BY BUREAU OF RECLAMATION (SURVEY DATE UNKNOWN), MONTANA FISH WILDLIFE AND PARKS (MFWP) (2007 SURVEY) AND RIVER DESIGN GROUP (SUPPLEMENTAL SURVEY 2013). ESTIMATED FLOW RATES FOR SPRINGS WERE PROVIDED BY MFWP (SEKOKINI SPRINGS MASTERPLAN, P.21 & APPENDIX J). TEMPERATURE DATA FOR SPRINGS WAS ACQUIRED FROM MFWP (SEKOKINI SPRINGS MASTERPLAN - APPENDIX C). GEOLOGIC SUMMARY AND RECOMMENDATIONS WERE ACQUIRED FROM BUREAU OF RECLAMATION (1999) (SEKOKINI SPRINGS MASTERPLAN - APPENDIX D). GEOTECHNICAL RECOMMENDATIONS WERE ACQUIRED FROM NTL ENGINEERING AND GEOSCIENCE (2003) (SEKOKINI SPRINGS MASTERPLAN - APPENDIX E). DESIGN FLOW RATES FOR THE SPRINGS WERE DETERMINED USING THE MEAN OF MINIMUM AND MAXIMUM RATES PROVIDED BY MFWP. POTENTIAL FOR HIGHER FLOWS EXISTS, AND ROUTING OF HIGHER FLOWS WILL BE ACCOMMODATED USING THE EXISTING NETWORK OF OVERFLOWS CHANNELS. THE MAXIMUM DESIGN INFLOW RATE FOR POND 8 WAS SPECIFIED BY MFWP AS 20 CFS (SCOPE OF WORK - APPENDIX A) . GEOTECHNICAL RISKS EXIST AND DETAILED GEOTECHNICAL INVESTIGATIONS HAVE NOT BEEN COMPLETED NOR ARE THEY PART OF THIS SCOPE OF WORK. A CERTAIN LEVEL OF RISK IS INHERENT WHEN CONSTRUCTING PONDS AND IMPOUNDING WATER IN THE VICINITY OF STEEP HILLSIDES AND AREAS OF MARGINAL STABILITY. CONSTRUCTING RELATIVELY IMPERMEABLE LINERS IN THE BOTTOM AND ON THE BANKS OF ALL PONDS AND STREAM CHANNELS WILL HELP MINIMIZE THE RISK OF SATURATING THE HILLSIDE AND TRIGGERING AN UNSTABLE CONDITION (NTL ENGINEERING AND GEOSCIENCE2003).

DRAWING INDEX

SEKOKINI SPRINGS VICINITY MAP



ENGINEERS SEAL

LICENSED PROFESSIONAL ENGINEER
01-09-15
No. 15067 PE
MATTHEW S. DANIELS
STATE OF MONTANA

SPATIAL REFERENCE

THE PROJECT COORDINATES ARE BASED ON THE FOLLOWING:

HORIZONTAL PROJECTION:	ASSUMED LOCAL
HORIZONTAL DATUM:	ASSUMED LOCAL
UNITS:	US SURVEY FEET
VERTICAL DATUM:	ASSUMED LOCAL

SECTION 17, TOWNSHIP 31 NORTH, RANGE 19 WEST

RIVER DESIGN GROUP, INC.
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COVER PAGE AND NOTES

NO.	DATE	BY	DESCRIPTION	CHK
1	4-15-13	NW	Preliminary Design - 65%	CN
2	7-01-13	NW	95% Design	MD
3	11-12-14	NW	FINAL DESIGN	MD
4	1-07-15	NW	ADDRESSED COMMENTS	MD

PROJECT NUMBER
RDG-13-004

SHEET NUMBER
1.0